

**Project Number and Title:** 00090- Monitoring of Oiled Mussel Beds in Prince William Sound

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**Abstract:**

This project has monitored the long-term retention and loss of *Exxon Valdez* oil (EVO) in mussel beds in Prince William Sound since 1992. In 1999, sediments and mussels were sampled from 25 previously oiled mussel beds where concentrations of EVO in each of these beds were above baseline when the beds were last sampled (1996). (Previously estimated baseline total petroleum hydrocarbon (TPH) concentrations were 52 µg/g.) Beds sampled in 1999 included nine beds that had been manually restored in 1994 because there was evidence in 1996 that some of the replaced surface sediments were becoming recontaminated.

In 1999, oil distribution was patchy in both restored and non restored beds. Concentrations in surface sediments from 15 (of 25 beds) ranged from 34 to 27,000 µg/g TPH (estimated fluorimetrically), but were less than maximum concentration of 65,000 µg/g observed in 1992. Concentrations of TPH within sediment from different parts of most beds differed by more than an order of magnitude. Mean TPH concentrations, estimated from composite samples pooled across beds, ranged from 35 to 6,000 µg/g.

Mean TPH concentrations in surface sediments of non-restored beds were typically greater than in restored beds (3,740 and 825 µg/g, respectively), but these differences were not significant due to high variability, especially among non-restored beds. In the five restored beds for which we now have 1999 data, concentrations in pooled surface sediments remained below pre-restoration levels in four beds. In restored beds, TPH concentrations in surface sediments of two beds were near baseline (36 and 141 µg/g and intermediate in 2 beds ( 1,000 µg/g), but reached 2,500 µg/g in one restored bed. In the non-restored beds TPH concentrations in pooled samples ranged up to 6,000 µg/g and approached baseline levels (248 µg/g) in only one bed.

Changes in surface TPH concentrations since 1996 were mixed. Concentrations in three restored beds remained stable, increased in one bed, and decreased in another. In non-restored beds, concentrations in 5 of 11 beds were stable, five beds had lower levels in 1999 than in 1996, and one had higher levels.

Preliminary results demonstrate continued persistence of EVO in the surface sediments of oiled mussel beds and the potential for continued mussel contamination and contamination of mussel predators. Mussel tissue data, currently being analyzed, will document the bioavailability of oil remaining in the beds.